

AMENDMENTS TO THE CLAIMS

Please amend the claims as follows:

1. **(currently amended)** An optical element comprising:
a substrate;
a first diffraction grating layer comprising with two dissimilar materials;
a single uniform layer; and
a second diffraction grating layer comprising with two dissimilar materials.
2. **(currently amended)** An optical element comprising:
the said substrate as claimed in claim 1; and,
A single or multiple sequences of layers, wherein each sequence comprising;
the said first diffraction grating layer as claimed in claim 1;
the said single uniform layer as claimed in claim 1; and
the said second diffraction grating layer as claimed in claim 1.
3. **(currently amended)** An optical element comprising:
the said substrate as claim in claim 1;
the said single uniform layer as claimed in claim 1; and
the said first diffraction grating layer as claimed in claim 1.
4. **(currently amended)** An optical element comprising:
the said substrate as claimed in claim 1; and
a single or multiple sequences of layers, wherein each sequence comprising:
the said single uniform layer as claimed in claim 1; and
the said first diffraction grating layer as claimed in claim 1.
5. **(currently amended)** An optical element comprising:
the said substrate as claimed in claim 1;
the said first diffraction grating layer as claimed in claim 1; and

the said single uniform layer as claimed in claim 1.

6. **(currently amended)** An optical element comprising:
the said substrate as claimed in claim 1; and
a single or multiple sequences of layers, wherein each sequence comprising:
the said first diffraction grating layer as claimed in claim 1; and
the said uniform layer as claimed in claim 1.
7. **(original)** The said first diffraction grating as claimed in the claim 1 have the grating patterns with 2 or more steps per period and they are synchronously or nonsynchronously sampled diffraction gratings.
8. **(original)** The steps of grating patterns as claimed in claim 7 are having the phase depths, which are in a binary or non-binary sequences.
9. **(original)** The said first diffraction grating as claimed in the claim 1 are the type of angle dependent or independent to the incident beam.
10. **(original)** The material type for the said substrate as claimed in claims 1, is barillium fluoride (BaF), or diamond, or zinc sulphide (ZnS) or zinc selenide (ZnSe) or zinc oxide (ZnO) for the near to long infrared wavelengths of lights.
11. **(original)** The material type for the said substrate as claimed in claim 1 is doped or nondoped type glass or semiconductor (e.g. GaAs or InP or Si) having transmissive characteristic over particular spectral region.
12. **(currently amended)** Materials having the refractive indices in between 1.6 and above for the said uniform layer as claimed in claim 1, in between 1.0 and 3.0 for one of the material used in the said first or second diffraction gratings as claimed in claim 1, in between 1.5 to 3.5 for other material used in the said first or second diffraction gratings as claimed in claim 1, and in between 1.42 to 2.5 for the said substrate as claimed in claim 1, can be used for the optical elements as claimed in claim 1.

13. **(original)** The materials for the said first or second diffraction gratings, as claimed in claims 1, are yttrium oxide as the low index material and diamond as the high index material, and the material for the uniform layer, as claimed in claims 1 is zinc sulphide.

14. **(original)** The materials for the said first or second gratings, as claimed in claim 1 are two material combination for the low-index and high index materials which are from ZrO_2 , HfO_2 , Si_3O_4 , or Y_2O_3 .

15. **(original)** The materials for the said uniform layer, as claimed in claim 1 are TiO_2 , SiO_2 , Si_3O_4 , ZrO_2 , ZnS , ZnSe , ZnO , HfO_2 , Si_3O_4 , or Y_2O_3 .

16. **(original)** The thickness of the first or second diffraction grating layer and also the said uniform layer, as claimed in claim 1 is either quarter-wavelength or n times quarter-wavelength, wherein n is the integer where $n=1, 2, 3, 4$ and so on.

17. **(original)** The said first or second diffraction grating layers as claimed in claim 1, separated by the said uniform layer as claimed in claim 1, is formed in a way that either low (high) refractive indices are in the same position or in the different position.

18. **(currently amended)** The optical elements as claimed in claim in 1 are also covered with antireflection coating to reduce the loss.